CALGARY RESEARCH AND DEVELOPMENT PARK

Area Structure Plan

APRIL 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT

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CALGARY RESEARCH AND DEVELOPMENT PARK
AREA STRUCTURE PLAN

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EXECUTIVE SUMMARY

The area covered by this Area Structure Plan was annexed to the City effective July 1, 1982 for the express purpose of accommodating the proposed Calgary Research and Development Park.

The total area of the plan is 518 hectares (1,280 acres), of which roughly 431 hectares (1,066 acres) may ultimately be required for the Park. The land is owned by the Province of Alberta (Alberta Public Works, Supply and Services) and will be leased to the developer (Calgary Research and Development Authority) in stages, in accordance with the phasing of development.

The proposed Research and Development Park will provide a setting within which high technology industries can undertake prototype development and manufacturing which is complementary to research.

It is hoped that a wide range of industries will be attracted to locate their research and development activities within this campus-like setting, including petroleum and gas, petrochemicals, electronics and computers, telecommunications and pharmaceuticals, to name but a few. Full development of the Park is expected to occur gradually, with an average of one new tenant per year over a total implementation period of 20 to 30 years.

A Planning Context Report, dealing with the development potential and probable ultimate uses of lands surrounding the proposed Research and Development Park, has been presented separately to City Council for information only.

MAP No 1

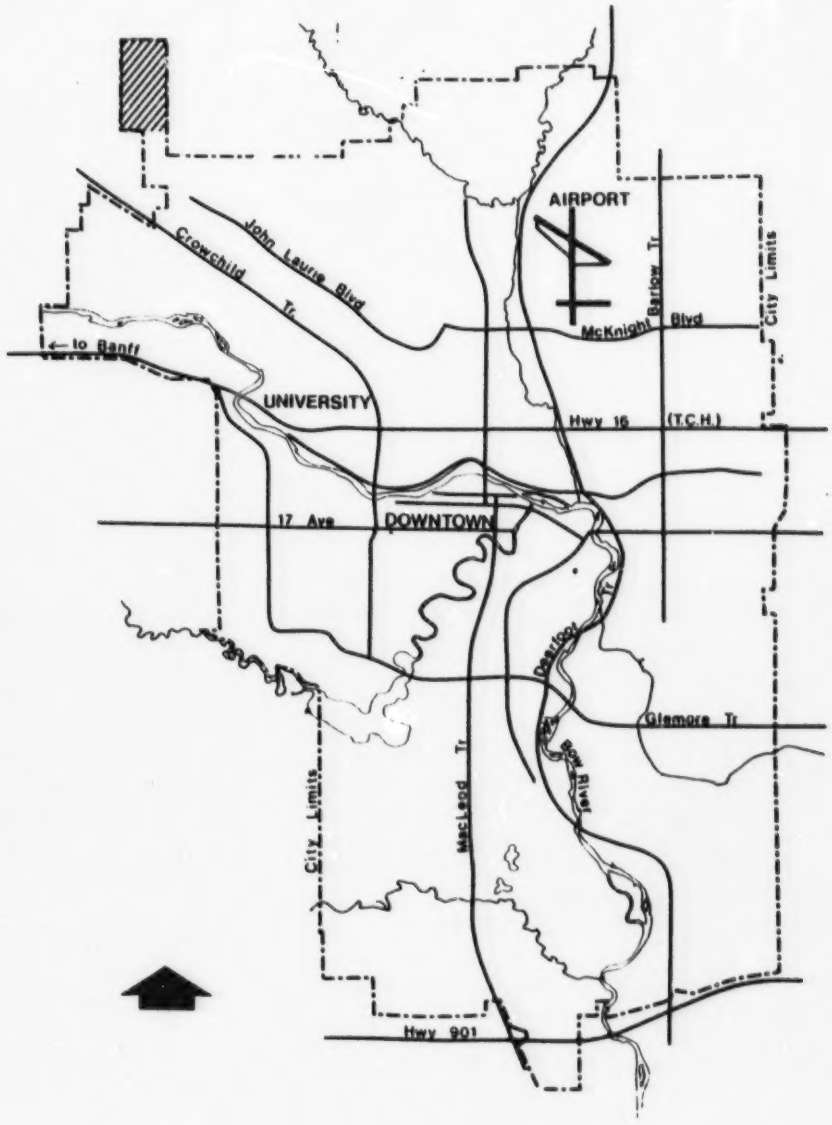
RESEARCH AND DEVELOPMENT PARK

TITLE

STUDY AREA LOCATION

LEGEND

AREA STRUCTURE PLAN



DATE

February, 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT

2.

PART I BACKGROUND AND SUPPORTING INFORMATION

1. INTRODUCTION

1.1 Location

The Calgary Research and Development Park Area Structure Plan covers a total of 518 hectares (1,280 acres), including all of Sections 28 and 33-25-2-W5 in the northwest corner of the City, as shown on Map 1. Included within the east half of Section 28 are the Bow River Correctional Centre and the University of Calgary Bio-medical Animal Resource Centre, as shown on Map 3.

The area is bounded on the west by 101 Street N.W. (Rocky Ridge Road), on the north by 144 Avenue N.W., on the east by 85 Street N.W., and on the south by the unopened road allowance of 112 Avenue N.W.

Sections 28 and 33, together with the east half of Section 21 to the south, were annexed to the City effective July 1, 1982.

The east half of Section 21 is not included within this Area Structure Plan other than in terms of the planning context, but could be dealt with either through a subsequent amendment to this Plan or through a separate area structure plan.

1.2 The Calgary Research and Development Authority

The Calgary Research and Development Authority (C.R.D.A.) was established in June, 1981 by the Alberta Legislature under Bill PR5, The Calgary Research and Development Authority Act.

The Authority comprises a total of fifteen members, four of whom are appointed by the Calgary City Council, four by the Board of Governors of the University of Calgary, four by the Calgary Chamber of Commerce plus two nominees of the Province. The fifteenth member is its President.

The mandate of the Authority is to foster the growth of advanced technology industry in Calgary. The Act establishing the authority has as its objects the promotion of research and activities which are necessary or convenient in the support of research including the establishment, development, maintenance and operation of the Calgary Research and Development Park. In order to carry out these objects the Authority has entered into an agreement with the Province regarding the lease of 431 ha (1,066 acres) of land within Sections 28 and 33, owned by the Province, upon which it is the intention to develop a prestigious Research and Development Park.

2. POLICY CONTEXT

2.1 Restricted Development Area/Transportation and Utility Corridor

The proposed Research Park is located within the Restricted Development Area (R.D.A.) established by the Provincial Government.

The Restricted Land Use Branch of Alberta Environment has drafted a request to Cabinet to release the lands in the Calgary Research and Development Park Area Structure Plan from the R.D.A.

The Transportation and Utility Corridor (T.U.C.), as presently designated, encompasses part of the southeast portion of Section 21. It does not affect directly this Area Structure Plan except that the extension of municipal services to the Research and Development Park will require that easements across the Corridor be secured.

2.2 Calgary Regional Plan

The Calgary Regional Plan was amended on January 14, 1983 by the Calgary Regional Planning Commission to designate the Research and Development Park as a "High Density District", suitable for urban development.

The amendment must be ratified by the Alberta Planning Board, as a prerequisite for Council adoption of this Area Structure Plan.

2.3 Calgary General Municipal Plan

City Council must amend the Calgary General Municipal Plan by identifying the Research and Development Park as a proposed land use within the "urban structure", and by designating the area as being suitable for an area structure plan as a prerequisite for adoption of this Area Structure Plan.

2.4 Neighbouring Area Structure Plans

Neither the approved Crowchild 3 Area Structure Plan nor the proposed Crowchild 4 Area Structure Plan, both of which are located to the southeast of the Research and Development Park is directly contiguous with the proposed Park. The extension of services and roads from these areas will require that easements be secured.

2.5 Local Plans for Adjacent Areas

The Research and Development Park is mostly surrounded by rural residential acreages and farms, all of which fall within the jurisdiction of the M.D. of Rocky View.

The Calgary Correctional Centre (C.C.C.), or "Spy Hill Jail", operated under the Solicitor General of Alberta, is located immediately east of the Park in Section 27.

The "Spy Hill Land Use Study"[1] represents Alberta Public Works, Supply and Services position with respect to long-term development of the lands owned by the Province (i.e. Sections 26, 27, 28 and 33). The study includes the proposed Research Park, the Calgary Correctional Centre, the Bow River Correctional Centre and the University of Calgary Bio-medical Animal Resource Centre (east half of Section 28), and the City's Spy Hill Sanitary Landfill site in Section 26.

1. Spy Hill Land Use Study Calgary (Draft). By DelCan Deleuw Cather, Western Ltd., for Alberta Public Works, Supply, and Services, December 1982.

3. STUDY AREA CHARACTERISTICS

3.1 Topography and Drainage

The area is characterized by six major landform units, as shown on Map 2 and described below:

a) A flat to undulating plain in two separate parcels is located in the northern part of the site. Topographic relief is less than ten metres, with most slopes less than 6 percent. This unit is generally well drained into temporary ponds.

b) A rolling plain located in the north and central portions of the area is separated into three parcels by a large ravine. Again, this unit is generally well drained into temporary ponds.

c) A large ravine is located in the north central area. The ravine walls are 20-30 percent slope. Surface water and groundwater collects into ponds in the ravine. The ravine drains to West Nose Creek.

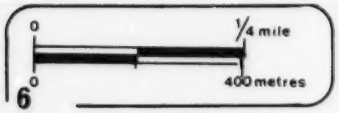
d) A dished plain is located in the southern area. Slopes are 3 to 5 percent in a total relief of nine metres. This unit is generally well drained into local ponds.

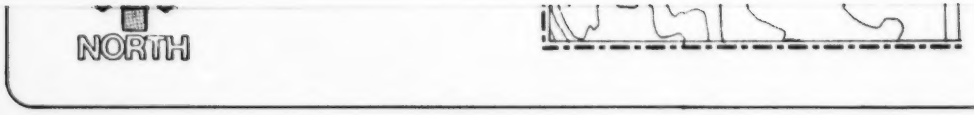
MAP Nº 2

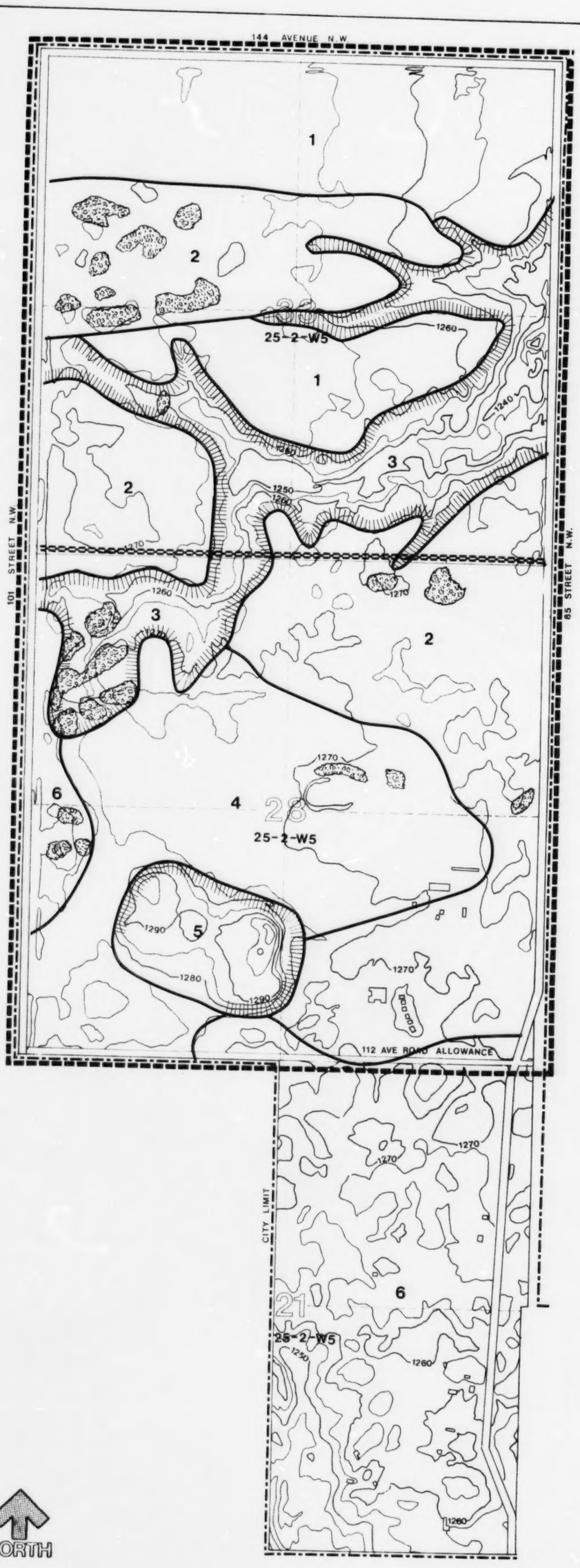
RESEARCH AND DEVELOPMENT PARK

TITLE

NATURAL FEATURES







MAP NO 2 **RESEARCH AND DEVELOPMENT PARK**

TITLE
NATURAL FEATURES

LEGEND

1 FLAT TO UNDULATING PLAIN
2 ROLLING PLAIN
3 RAVINE
4 DISHED PLAIN
5 KAME
6 HILLS AND PONDS
HIGH QUALITY POPLAR TREES
STEEP SLOPES

POWER LINE 240kV
STUDY AREA
CITY LIMIT

DATE
FEBRUARY, 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT

0 ¼ mile
0 400 metres

e) A kame feature[2] is located in the southern area. This geologic feature is unique in Calgary. Steep slopes (over 30 percent) which are found on three sides rise to 27 metres. The southwestern slope of the kame is about 10 percent.

f) A complex of hills and ponds is located on the southern and western margins of the area. The hills occassionally reach 10 metres in height. Numerous ponds collect surface water in a poorly integrated network.

Development may be undertaken on either the rolling or flat plains without significant changes to site grading and drainage. However, extensive grading may be necessary prior to any development in the kame, hills and ponds area.

3.2 Soils and Geology

The soils throughout the area are composed of mixtures of sand, silt and gravel.

Clay and organic material have collected in poorly drained ponds.

Generally, however, the soils are well suited to urban development.

2. A kame is an isolated hummock of sand and gravel deposited from water of a melting glacier.

3.3 Environmentally Sensitive Areas

Environmentally sensitive areas in the Park comprise the ravine, some high quality poplar groves and the kame, as shown on Map 2.

The ravine system and the poplar groves identified should be considered for conservation as open space areas, through development guidelines to be established and enforced by the C.R.D.A.

The kame will continue as the site of a water reservoir, and may be utilized by future tenants of the Park.

3.4 View Aspects

Panoramic views of the Rocky Mountains, the City of Calgary and the Research and Development Park itself can be had from the kame.

3.5 Historical and Archaeological Resources

An Historical Resources Overview[3] of the area, located 7 prehistoric sites comprising tipi rings, stone cairns and various artefacts.

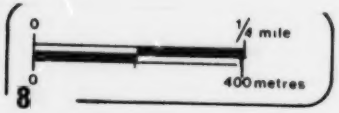
Archaeological impact assessments will be required for the sites prior to outline plan approval. Conservation and salvage measures, if needed, shall be carried out by the developer in accordance with the requirements of Alberta Culture. At the request of Alberta Culture, the locations of these sites have not been shown in the Area Structure Plan.

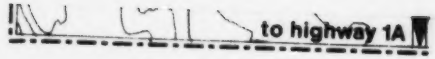
3. "Historical Resources Overview Research Park, Sections 28 and 33 (25-2-W5) Crowchild Sector Northwest Calgary". Prepared for IBI Group by Lifeways of Canada Limited. February, 1982.

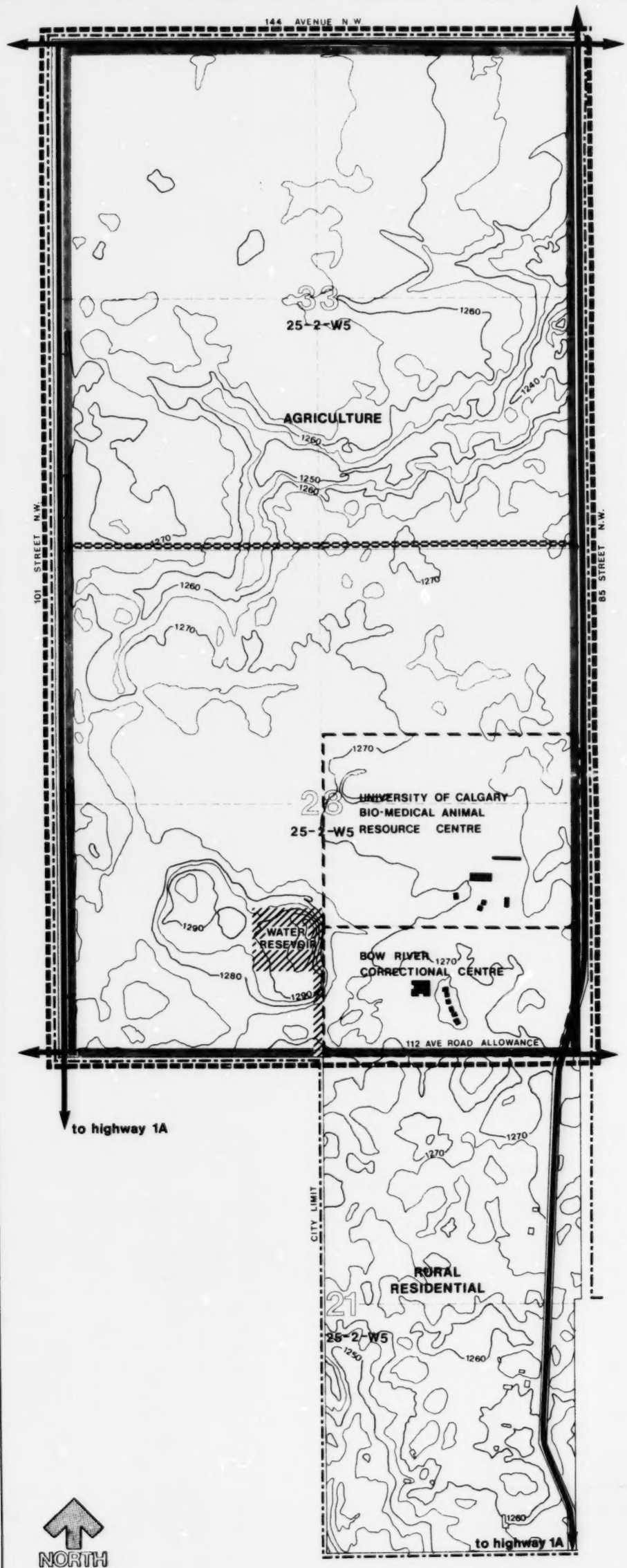
MAP NO 3

RESEARCH AND DEVELOPMENT PARK

TITLE : LAND OWNERSHIP & EXISTING LAND USE







MAP No 3 **RESEARCH AND DEVELOPMENT PARK**

TITLE: LAND OWNERSHIP & EXISTING LAND USE

LEGEND:

OWNERSHIP:

- CROWN LAND, PROVINCE OF ALBERTA
- CITY OF CALGARY

EXISTING LAND USE:

AS SHOWN

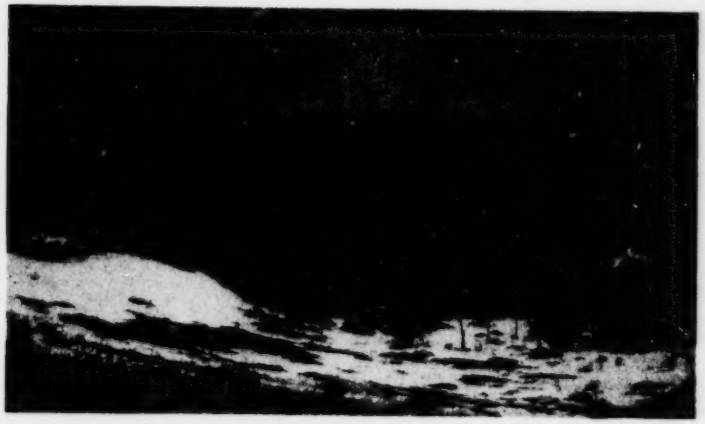
- RURAL PAVED ROAD
- POWER LINE 240 kV
- STUDY AREA
- CITY LIMIT

DATE FEBRUARY, 1983

THE CITY OF CALGARY PLANNING DEPARTMENT

0 ¼ mile
0 400 metres

NORTH



3.6 Land Ownership and Existing Uses

A total of 512 hectares (1,266 acres) within Sections 28 and 33 is owned by the Province of Alberta. Most of this land is presently in agricultural use.

The City of Calgary owns a 6 hectare (14 acre) site in Section 28 for a water reservoir, as shown on Map 3. The existing Provincially owned reservoir supplies water to the two correctional institutions, the Town of Airdrie and several farms along the watermain route.

The University of Calgary Bio-medical Animal Resource Centre leases 48.5 hectares (120 acres) in the east half of Section 28 from the Province. The facility is engaged in activities related to animal husbandry.

The Bow River Correctional Centre, operated by the Alberta Solicitor General, occupies 32 hectares (80 acres) immediately south of the University of Calgary facility in Section 28. The facility consists of a central building and six detached houses.

3.7 Transportation Access

Roadway access is available from Crowchild Trail via either Nose Hill Drive and 112 Avenue N.W., 85 Street N.W. or 101 Street N.W. (Rocky Ridge Road), as shown on Map 5.

The section of 101 Street running from Crowchild Trail north to 112 Avenue, as well as 112 Avenue to the east of 85 Street, are under the jurisdiction of the M.D. of Rocky View.

All other access roads are located within the limits of the City of Calgary.

3.8 Services and Utilities

As noted under 3.6 above, a Provincial watermain running from the Baker Centre northwest of Bowness serves the adjacent land uses and the Town of Airdrie.

The Province also operates a number of sewage lagoons which serve the Calgary Correctional Centre, the Bow River Correctional Centre and the University of Calgary farm manager's residence.

The University of Calgary operates one sewage lagoon which serves only the animal husbandry facilities.

Electricity is supplied by TransAlta Utilities power lines.

Canadian Western Natural Gas Co. Ltd. supplies natural gas to the area.

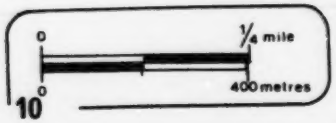
Alberta Government Telephones also presently serves the area.

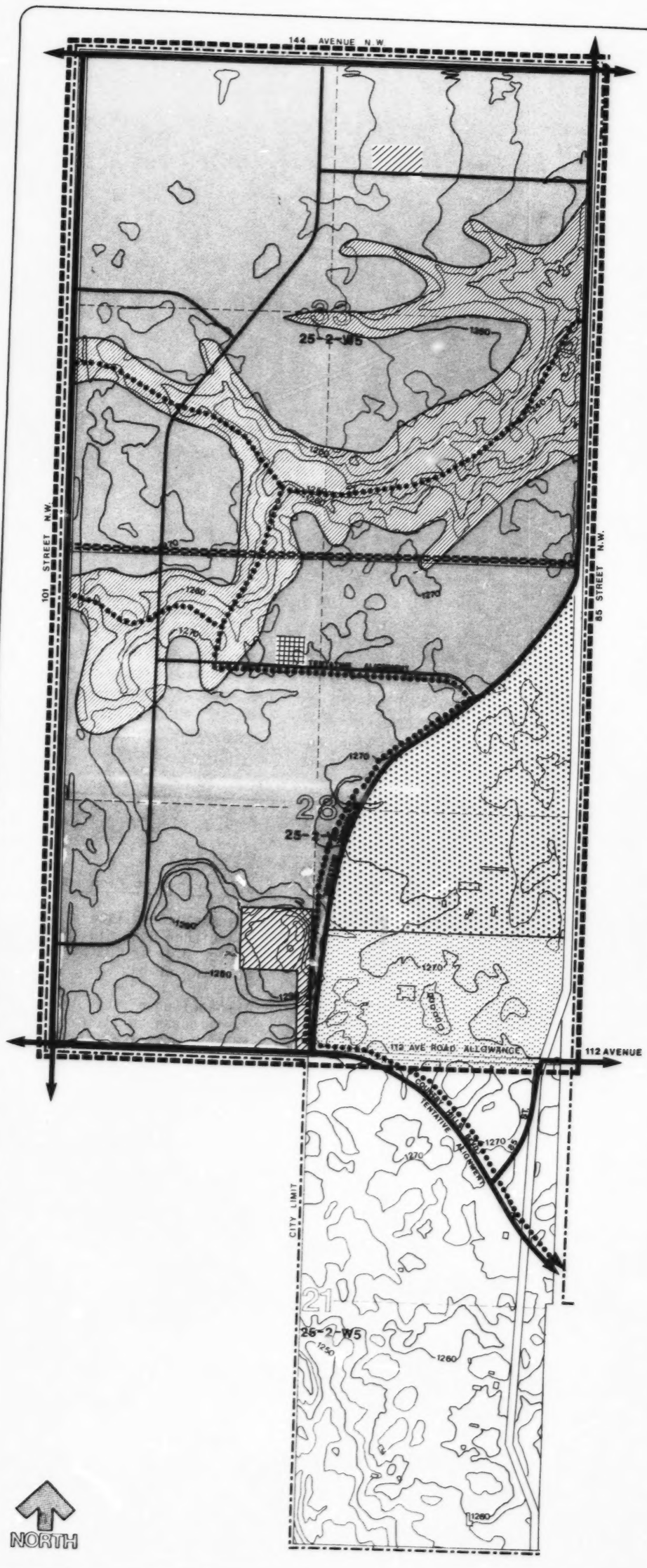
MAP NO 4

RESEARCH AND DEVELOPMENT PARK

TITLE

LAND USE PLAN





MAP No 4 **RESEARCH AND DEVELOPMENT PARK**

TITLE

LAND USE PLAN

LEGEND

- RESEARCH AND DEVELOPMENT PARK
- MULTI-PURPOSE CENTRE
- RAVINE/OPEN SPACE
- WATER RESERVOIR
- U of C BIO-MEDICAL ANIMAL RESOURCE CENTRE
- BOW RIVER CORRECTIONAL CENTRE
- MAJOR ROAD
- MODIFIED PRIMARY COLLECTOR OR COLLECTOR ROAD
- PEDESTRIAN AND BICYCLE PATH
- POWER LINE 240 kV
- STUDY AREA
- CITY LIMIT

DATE **FEBRUARY, 1983**

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0 ¼ mile

0 400 metres

10

PART II - THE PLAN

4. LAND USE

4.1 Development Concept

Sections 28 and 33-25-2-W5 were annexed to the City for the express purpose of accommodating the Calgary Research and Development Park.

The Research Park may ultimately occupy approximately 431 hectares (1,066 acres), as shown on Map 4. Ultimate development of the entire area will depend upon market demand for a facility of this type.

The existing uses within this Area Structure Plan (i.e. the Bow River Correctional Centre, the University of Calgary Bio-medical Animal Resource Centre, the City water reservoir site) will remain in place, functionally independent of the Research Park and with the Bow River Correctional Centre buffered from it by the realigned 85 Street. However, the boundaries of the parcels occupied by these uses will change, depending upon the final alignment of 85 Street.

Existing agricultural land uses will continue until such time as the land is required for the Research and Development Park.

The land use plan is shown in Map 4.

4.2 Research and Development Park

The Park will provide high technology industry with a research and working environment unique to Calgary. The Park will provide for prototype development and high technology product manufacturing which is directly related to research.

The concept provides for:

- a range of parcel sizes,
- the capability to expand over a 30-year development period,
- a campus-like setting of high aesthetic and landscaping standards,
- land uses restricted to research and development activities and other high technology fields,
- professional and administrative activities related to the above,
- business and commercial support services such as day care and recreational facilities to meet the needs of the employees.

Among the types of research and development activities which may locate within the Park are those associated with the following types of industry:

- petroleum and gas
- coal
- petrochemicals
- geophysics
- electronics, microsystems
- computers (software and applications)
- telecommunications
- biotechnology
- agriculture
- food sciences
- pharmaceuticals
- medical devices
- mining
- machinery

An average of 8-12 employees per acre is projected for the Park, with an ultimate forecast upwards of 10,000 employees.

Land use and development of the Research and Development Park shall be subject to the City of Calgary Land Use By-law 2P80. In addition, development may be subject to guidelines established by the C.R.D.A. to achieve a campus-like setting by features such as; generous building setbacks, landscaping and visual buffers.

Product manufacture or assembly shall be limited to prototype development or to the assembly of high technology products which are clearly related to the on-site research and development activities.

No facility exclusively engaged in manufacturing or assembly shall be permitted to occupy space in the Park.

The principal objectives in design of the Park are the following:

1. flexibility in lot sizes to custom fit individual tenants.

2. logical and orderly development from south to north.

3. outdoor experiment areas to be screened visually from any property line.

4. a total development timeframe in the range of 20 to 30 years.

The C.R.D.A. may lease up to approximately 431 hectares (1,066 acres) of land required for the Park from the Government of Alberta. This land will be leased in stages, as required for development.

4.3 Institutional

The Bow River Correctional Centre will continue to occupy, for the foreseeable future, 32 ha (80 acres) in the southeast corner of Section 28, as shown on Map 4.

This facility is one of the two correctional institutions in the area operated by the Alberta Solicitor General, and it is the intention of the Province to integrate these facilities, together with a new West Calgary Remand Centre in Section 27, into a single contiguous land use.

4.4 Agricultural

The University of Calgary Bio-medical Animal Resource Centre, located within a 48 ha (120 acre) parcel north of the Bow River Correctional Centre, will continue to function on that site, for the foreseeable future independent of the proposed Research Park.

4.5 Commercial

The Park may contain a multi-purpose centre. This centre may contain offices and other services such as retail, day care and recreational facilities for the use of the Park tenants. An appropriate site cannot be determined until such time as the pattern of development in the Park has been established.

A tentative location for this facility is shown on Map 4.

4.6 Open Space

The ravine, as shown in Map 4, will be conserved as open space at such time as development has proceeded on lands adjacent to the ravine. The ravine has steep slopes (in the range of 15 to 30 percent) and provides a natural open space linkage across the Research Park.

Appropriate property setbacks from the tops of slopes will be established through geotechnical studies.

The limits of the ravine will be established at the outline plan stage.

The ravine will remain in an essentially natural state.

A separate pedestrian and bicycle path will be required within the right-of-way of Country Hills Boulevard and along the realigned 85 Street to the ravine, as shown schematically on Map 4. The specific alignments and widths of these pathways shall be established at the outline plan stage.

The high quality tree growth, steep slopes and the kame, as shown on Map 2, will be conserved wherever possible through development guidelines to be established and enforced by the C.R.D.A.

MAP No. 5 RESEARCH AND DEVELOPMENT PARK

TITLE
TRANSPORTATION PLAN

LEGEND

EXISTING ROADS

FREEWAY OR EXPRESS WAY

MAJOR ROAD

PROPOSED ROADS

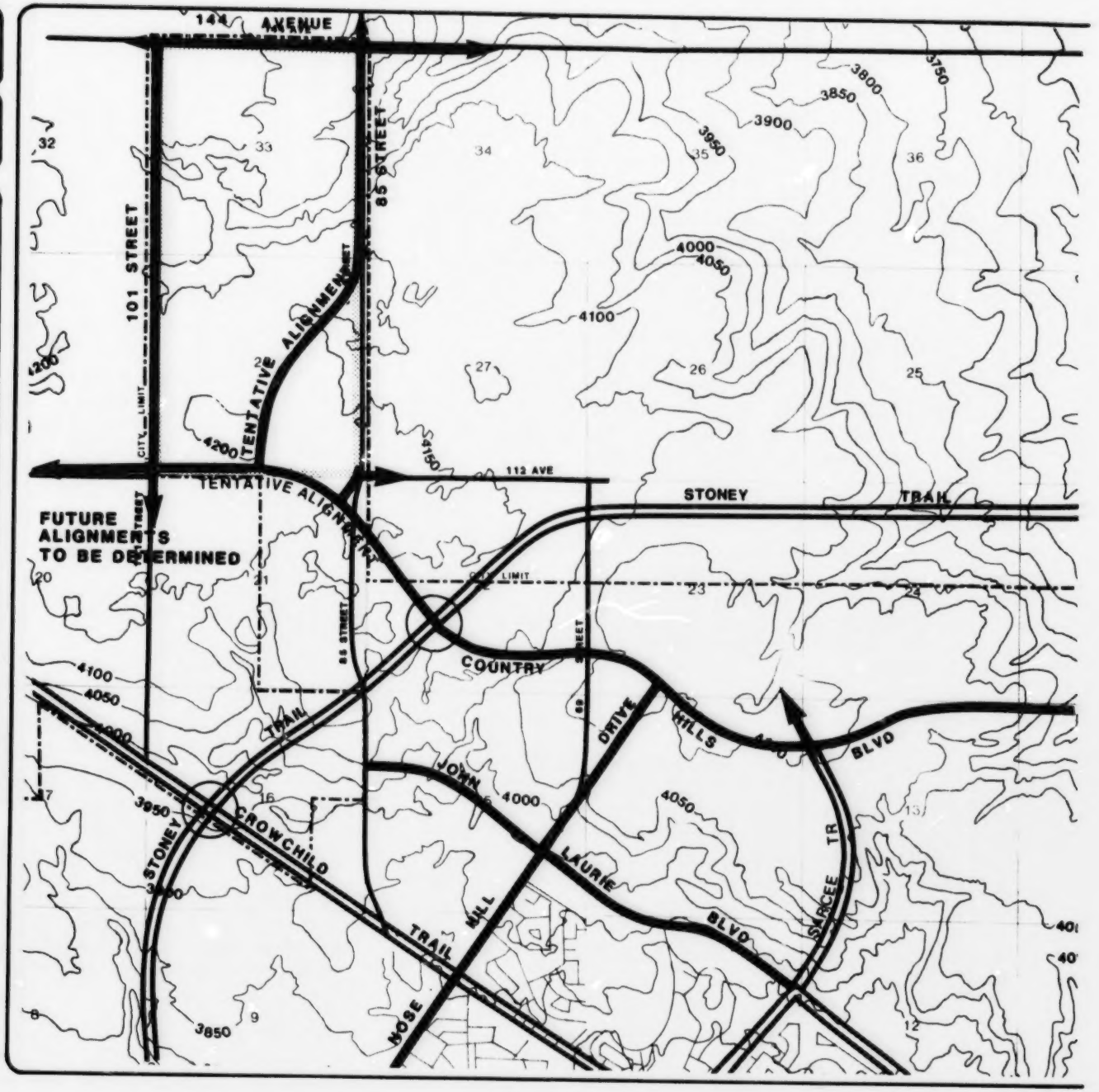
FREEWAY OR EXPRESS WAY

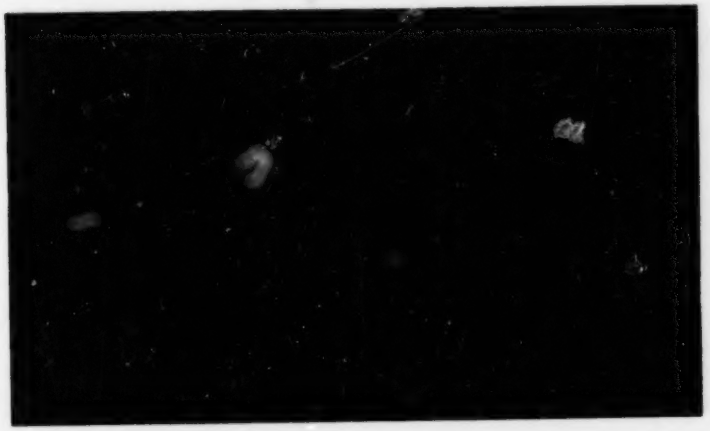
MAJOR ROAD

GRADE SEPARATED INTERCHANGE

DATE
February, 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT





5. TRANSPORTATION

5.1 External Roadway Access

Ultimately, access to the Park will be provided by an extension of Country Hills Boulevard to 101 Street N.W. (Rocky Ridge Road) and to a realigned 85 Street N.W., as shown on Map 5.

Primary access will be via 101 Street leading to the main entrance to the Park.

In the interim, access is available from Highway 1A (Crowchild Trail) via either 85 Street or 101 Street. Although 85 Street is legally closed at Crowchild Trail, the terms of the closure provides for it to remain open until such time as an alternate route is developed.

The timing for construction and/or upgrading of the various access roads has not yet been established, and will be dependent upon the pace of development within and adjacent to the Park, as well as on the availability of capital funds.

5.2 Internal Circulation

The general road pattern proposed for internal circulation is illustrated on Map 4. This pattern is conceptual only, and is subject to revision at the outline plan stage of subdivision.

The major constraints will be the locations of intersections along 85 Street, 101 Street and 144 Avenue N.W.

The internal road system will develop incrementally as development of the Park proceeds, generally from south to north.

The design standards and functional classification of the roads will be subject to approval of the Subdivision Approving Authority at the time of outline plan submission.

5.3 Public Transit

Conventional feeder bus service may be extended to the Research Park, if and when warranted by demand.

MAP No. 6

RESEARCH AND DEVELOPMENT PARK

TITLE

WATER AND SEWER SERVICES

LEGEND

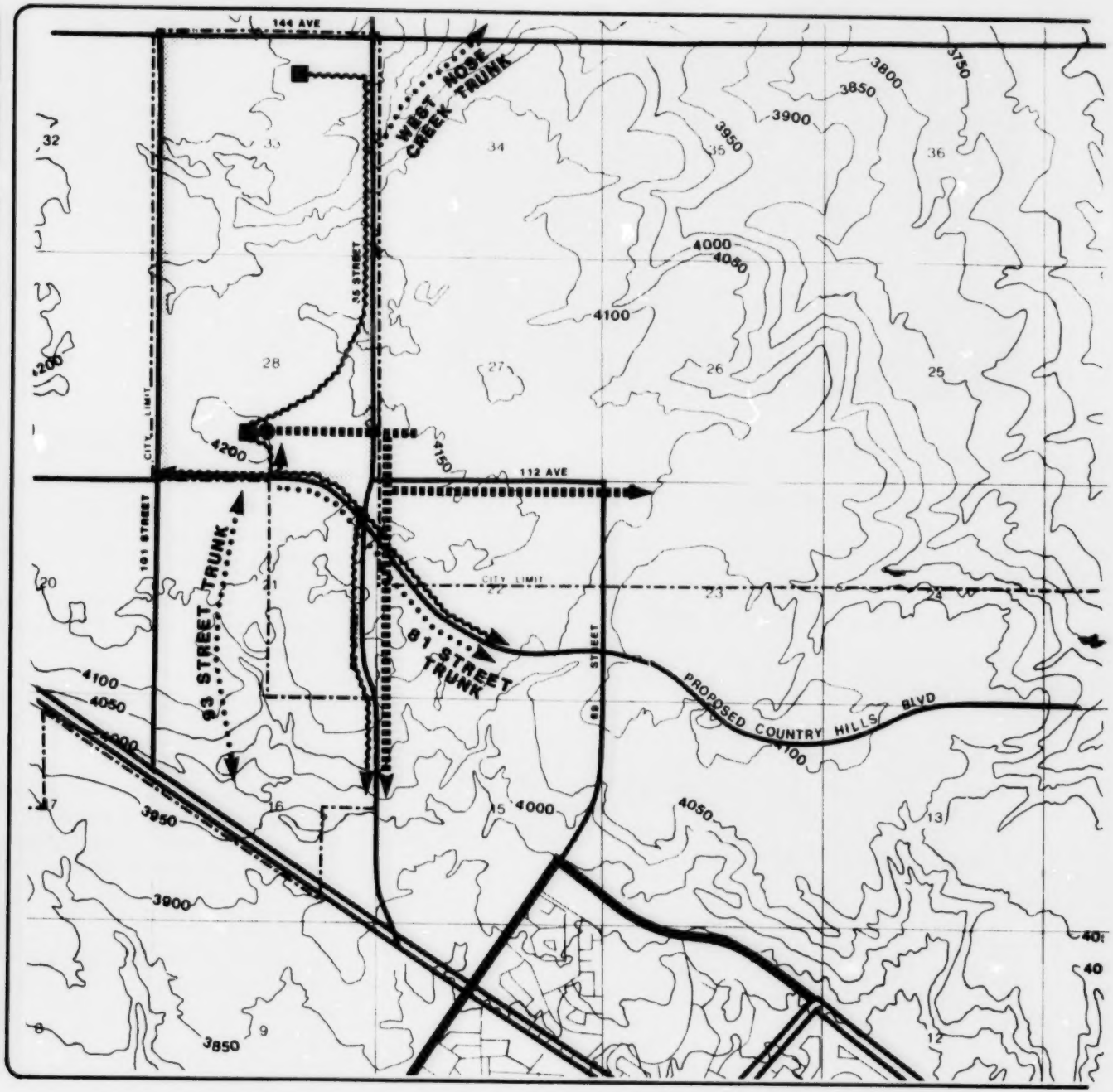
EXISTING

- WATER TOWER
- MOUNTAINVIEW REGIONAL WATER SYSTEM

FUTURE

- RESERVOIR
- SANITARY SEWER TRUNK
- WATERMAIN

NOTE: FUTURE TRUNK ALIGNMENTS AS SHOWN ARE SCHEMATIC



DATE

February, 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT

0 .5 1mile
0 500 1600m
N

6. UTILITIES

6.1 Water Supply

Water for limited development within a portion of the Park may be supplied from the existing Mountainview Regional Water System (as shown on Map 6), subject to feasibility studies and the approval of the Province. All costs associated with this interim water system and the provision of adequate fire protection shall be at the developer's expense.

The primary water supply shall consist of a reservoir and pumping station, to be located in Section 28, and a major watermain to be constructed along Country Hills Boulevard as shown on Map 6.

The construction of these facilities is dependent on the approval of the necessary capital expenditures by City Council, and on the establishment of the grade and alignment of Country Hills Boulevard. As development proceeds, additional water mains will be required along 85 Street and Country Hills Boulevard to reinforce the water distribution network.

The City will require a site in Section 33 for a future reservoir to supply the Nose Hill pressure zone. The actual site will be determined through negotiations with the Province and the C.R.D.A.

6.2 Sanitary Sewerage

Development within the southwest portion of the plan area (approximately 120 hectares) may be serviced on an interim basis via the proposed 81 Street trunk, as shown on Map 6.

Servicing of additional lands by the 81 Street trunk will be contingent on downstream upgrading of the sanitary trunk capacity at the developer's expense.

The remainder of the Research Park will be serviced by either the West Nose Creek trunk or a sanitary lift station, pumping south to the proposed 93 Street trunk. The ultimate servicing scheme will be dependent on the availability of these trunks.

On-site holding tanks may be considered as an interim solution for limited development of the site, pending resolution of the ultimate servicing scheme. Construction and operation of this temporary scheme shall be the responsibility of the developer, subject to the approval of the appropriate authorities.

The Bio-medical Animal Resource Centre and the Bow River Correctional Centre will continue to be served by the existing sewage lagoons operated by the Province, located on the site of the Calgary Correctional Centre as shown on Map 6.

MAP No. 7

RESEARCH AND DEVELOPMENT PARK

TITLE

ELECTRIC SERVICES

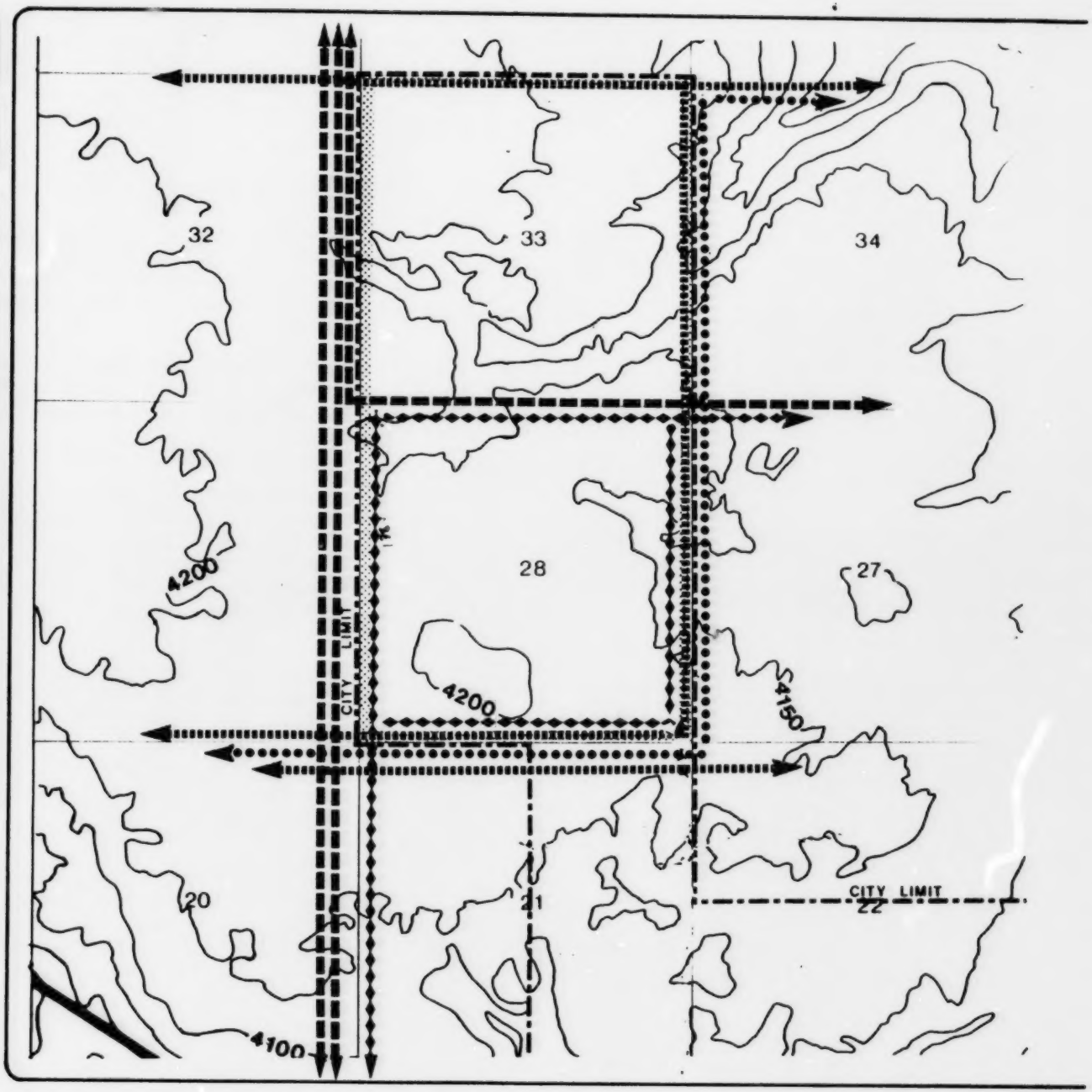
LEGEND

Existing

- 240 kV
- 69 kV
- 25 kV

Future

- 138 kV



DATE
February, 1983

THE CITY OF CALGARY
PLANNING DEPARTMENT

0 ¼ ½ Mile

N

6.3 Stormwater Management

Prior to the approval of any outline plans of subdivision the applicant will be required to prepare a master plan for stormwater management, to the satisfaction of the Subdivision Approving Authority and the Province.

Any stormwater retention ponds will be maintained by the developer.

Easements along the entire length of the ravine between West Nose Creek and the Research Park must be obtained by the C.R.D.A. to the satisfaction of both the Subdivision Approving Authority and the Province.

The Bio-medical Animal Resource Centre and the Bow River Correctional Centre will continue to allow stormwater to collect in surface ponds on their respective sites.

6.4 Electrical

The City Electric System is presently negotiating with TransAlta Utilities for expansion of its distribution limits to encompass the Park. After these are concluded, the initial phases of the Park can be serviced by extending existing 138 kV lines.

Other service will be supplied as demand warrants, from a planned 138 kV line to be installed by the City either through or adjacent to the Park.

6.5 Natural Gas

Canadian Western National Gas Company will install permanent services provided that the alignment and final grades of Country Hills Boulevard and the internal roads are established.

Any temporary facilities, if required, will be installed along the 112 Avenue road allowance from the existing high pressure gas main located along 85 Street. The cost of any temporary facility will be entirely borne by the developer.

6.6 Telephone

Alberta Government Telephones will install permanent services provided that the alignment and final grades of Country Hills Boulevard and the internal roads are established.

A temporary service will be installed if required, for initial developments, pending resolution of the permanent easements.

7. PUBLIC SERVICES

7.1 Police

Police service will be provided initially from the District 3 office located at 4303 - 14 Street N.W.

A future station to be located near John Laurie Blvd. and Nose Hill Drive will serve the Research Park, and will thus complement the District 3 office.

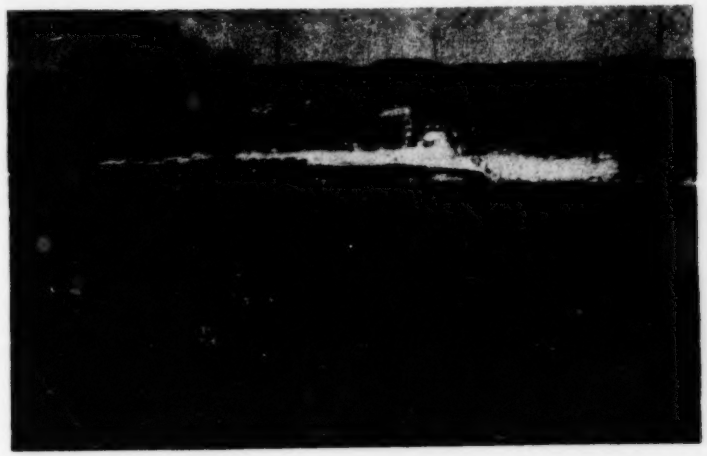
The timing for construction of this station has not yet been established.

7.2 Fire and Ambulance

Fire protection and ambulance services will be provided initially from Station 21, located at 209 Silvergrove Drive N.W.

A future station to be located near 80 Avenue N.W. and 53 Street N.W. will also serve the Research and Development Park. The timing for construction of this station has not yet been established.

The need for an on-site fire station will be assessed by the Calgary Fire Department as development of the Park proceeds.



8. SEQUENCE OF DEVELOPMENT

Development will be phased in an orderly progression, generally from south to north, as services become available and as demand warrants.

The first phase of development could be accommodated by utilizing temporary servies (e.g. the Mountainview Regional Water System, and sewage holding tanks) and road access via an unimproved 101 Street.

However, prior to the approval of any subsequent development, a full reassessment of servicing and roadway access implications shall be undertaken.

At this point in time, the staging and timing for the implementation of the ultimate servicing and transportation schemes have not been established.